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π magnetic states of ferromagnet/superconductor superlattices

Proshin Y., Izyumov Y., Khusainov M.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

For the ferromagnetic metal/superconductor (FM/S) superlattices, 0 π and ππ states with antiferromagnetic ordering of the FM layers magnetizations are predicted. If the S layer thickness ds is less than the threshold value ds π, these states have a higher critical temperature Tc than the earlier known ferromagnetic states 00 and π0. Therefore, the Tc oscillation origin at dsds π it is related to the sequence of transitions 00-π0-00. A type of logical device combining the advantages of the superconducting and magnetic recording channels in one sample is offered on the FM/S superlattice base.